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# COLLOID MILIUM.

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THE original account of colloid milium (Wagner, 1866) contains the suggestion that these small translucent yellowish lesions might have developed as a result of the degeneration of sebaceous glands. Others (Gans, 1925) believe them to be due to the breakdown of collagen or, possibly (Arnold, 1943), of both collagen and elastin. The theory that the colloid derives from elastic tissue was propounded by Ferreira-Marques and Van Uden (1950) and supported by Findlay (1954). No alteration, however, was found in the collagen by Percival and Guthrie (1948) who considered that the colloid material might be deposited from the circulating blood or lymph, or laid down as an infiltrate similar to that in amyloidosis. All these theories depend either on conjecture, on the interpretation of stained material or on the results of trypsin digestion.

By the application of paper chromatography (Zoon *et al.*, 1955) the problem was approached from an entirely different angle and the conclusion was reached that colloid originated almost certainly from serum proteins.

## CASE REPORTS.

CASE 1.—This patient was shown at a meeting of the Royal Society of Medicine (Wilson, 1955). She was a woman of 35, and had noticed yellowish papular lesions on the backs of the hands since the age of 22. She had lived all her life in South Africa or Rhodesia. Her father, who had lived in Africa most of his life, had had a similar condition of his hands since the age of 20; one brother and one sister were also believed to be affected, but the patient's mother and one sister and brother were unaffected.

*Histology* (Dr. H. Haber).—Separated by a narrow zone of normal collagen there are several foci consisting of a fissured mass of homogeneous material containing a few nuclei. The histology is quite characteristic of colloid milium.

Case 2.—This patient was presented at a meeting of the Royal Society of Medicine (Lyell and Whittle, 1950).

A farm worker, aged 35, gave a nine years' history of an eruption on the forehead and cheeks. Although worse in summer it did not disappear during the winter. There was nothing of note in his family or past history.

*On examination* the lesions consisted of orange-yellow papules 3–4 cm. in diameter, looking like deep-seated blisters. They formed a band along the forehead just above the eyebrows extending over the bridge of the nose on to the cheeks below the eyes.

*Histology.*—The histology was typical and consisted of masses of pink-staining colloid lying between the follicles in the upper part of the dermis. The epidermis was thinned and flattened. Flattened nuclei appeared between the strands and the elastic tissue was broken up around and missing within the colloid areas. Vessels and occasional small interpapillary epidermal processes were enclosed in some of the colloid masses.

Case 3.—(I am indebted to Dr. K. M. Tomlinson for the following history.) A Dutch poultry farmer aged 48 first noticed lesions on the bridge of the nose 10 years ago. Since then the eruption has spread to involve the whole of the nose and the cheeks. The lesions consist of characteristic yellowish papules. He has always led an open-air life but has never been in the tropics. Past and family history irrelevant.

## *The Present Investigation*

Specimens of colloid material obtained from the three patients and samples of collagen and elastin were submitted to one of us (J. F. B.) and examined by means of paper chromatography.

### *Experimental Procedure.*

*Preparation of materials.*—Collagen and elastin were prepared from ligamentum nuchae, tendo calcaneus and from skin by the method of Lowry *et al.* (1939). The serum proteins were prepared from clotted blood and used either separately or fractionated into their albumin and various globulin components by continuous electrophoresis following the procedure of Hobart and Rose (1955).

Colloid was obtained from the three patients by puncturing the lesions with a sharp needle and expressing the gelatinous contents. Before being examined it was washed in normal saline to free it from traces of blood.

*Hydrolysis.*—All preparations were hydrolysed with 6 N hydrochloric acid for 24 hours, followed by removal of the acid by vacuum distillation below 38° C. Each sample was then electrolytically desalted and finally concentrated to a convenient volume for application to the papers.

*Paper chromatography.*—The samples were treated with hydrogen peroxide and molybdate to oxidise the cystine to cysteic acid, and methionine to methionine sulphone. Two dimensional chromatograms were developed in

the normal way, using *n*-Butanol/acetic acid/water mixture (60/15/25) and Phenol/Water (80/20) containing 1% ammonia S.G. 0·88. Three staining reactions were used to reveal the amino acids, a 0·2% Ninhydrin solution in acetone, a 0·1% Isatin solution, and the very sensitive Isatin-Ehrlich reagent for hydroxyproline (Jepson and Smith, 1953).

*Results.*

The colloid material gave similar results in the three patients, the amino acid composition being identical and the relative proportions the same in all (Fig. 4). Constant results were also obtained from both collagen and elastin irrespective of the source from which the material was obtained (Figs. 1 and 2).

Comparison with the previous findings of Zoon *et al.* (1955) showed agreement regarding the amino acid composition of colloid and serum, contrasted with collagen and elastin (Table I). In particular hydroxyproline was found to be

TABLE I.

| | Collagen. | | Elastin. | | Serum. | | Colloid | |
|---|---|---|---|---|---|---|---|---|
| | A. | B. | A. | B. | A. | B. | A. | B. |
| 1. Aspartic acid | − | + | − | + | + | + | + | + |
| 2. Glutamic „ | + | + | − | + | + | + | + | + |
| 3. Serine | .. | + | .. | + | .. | + | .. | + |
| 4. Glycine | + | + | + | + | + | + | + | + |
| 5. Threonine | − | + | − | + | + | + | + | + |
| 6. Alanine | + | + | + | + | + | + | + | + |
| 14. Tyrosine | − | + | − | − | + | + | + | + |
| 7. Valine | − | + | + | + | + | + | + | + |
| 13. Phenylalanine | + | + | − | + | + | + | + | + |
| 8/9. Leucines | + | + | + | + | + | + | + | + |
| 10. Histidine | .. | + | .. | + | .. | + | .. | + |
| 11. Lysine | − | + | − | + | + | + | + | + |
| 12. Arginine | − | + | − | + | + | + | + | + |
| 16. Proline | + | + | + | + | + | + | + | + |
| 17. Hydroxyproline | + | + | + | + | − | − | − | − |
| 19. Cystine | .. | − | .. | − | .. | + | .. | + |
| 23. Methionine | .. | − | .. | − | .. | + | .. | + |

A = Results of Zoon, Jansen and Hovenkamp (1955).
B = Results of the present series.
The numbers given to the amino acids are the same as those in Figs. 1–4.

absent from the colloid and from a mixture of serum proteins or from individual serum protein fractions, but was present in both collagen and elastin. In our investigation, however, we found the acidic or basic amino acids (aspartic, glutamic acid, lysine and arginine) to be present in both collagen and elastin although these were not detected by Zoon. We found glutamic acid to be present in both collagen and elastin, although Zoon and his collaborators found it to be present in collagen but absent from elastin.

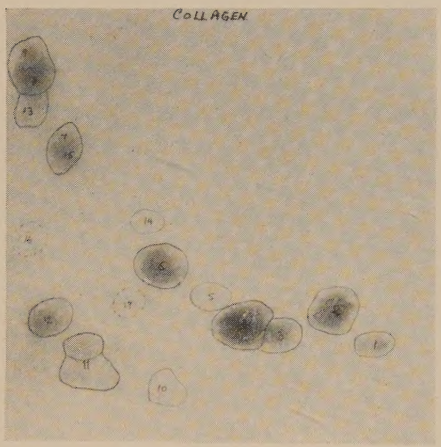


FIG. 1.

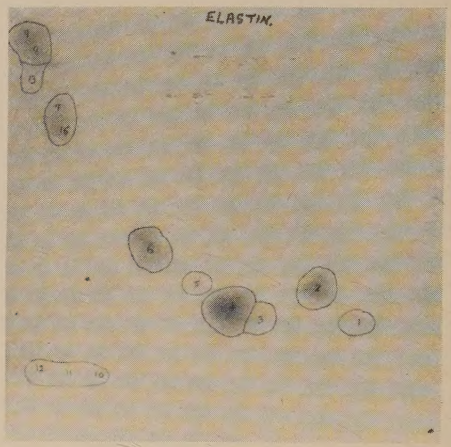


FIG. 2.

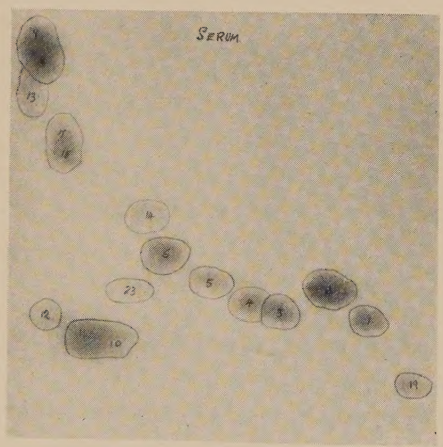


FIG 3.

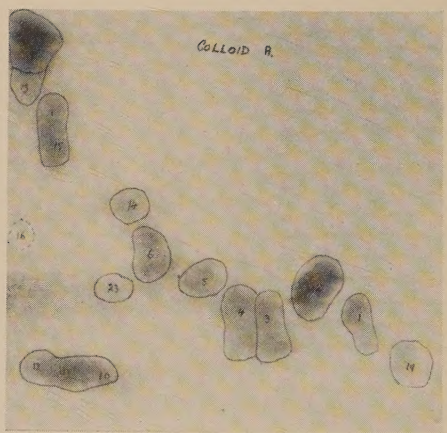


FIG. 4.

In addition, by using peroxide oxidation we found cystine and methionine present as cysteic acid and methionine sulphone in the colloid and in serum proteins but not in either collagen or elastin.

These results confirm the observation that the amino acid composition of the colloid bears a closer similarity to that of serum proteins than it does to either collagen or elastin. They provide substantial evidence in favour of the theory that colloid is derived from serum proteins, but we do not consider that this similarity alone can be accepted as positive proof of the origin of colloid.

We are indebted to Dr. F. Ray Bettley, Physician for Diseases of the Skin at the Middlesex Hospital, for encouraging us to undertake this investigation, to Prof. Sir Charles Dodds for his interest in the work, and to Drs. C. H. Whittle and K. M. Tomlinson for providing us with clinical histories and samples of colloid material from their cases.

## References.

Arnold, Jr., H. L. (1943) *Arch. Derm. Syph., Chicago*, **48**, 262.
Ferreira-Marques, J. and Uden, N. van (1950) *Arch. Derm. Syph., Wien*, **192**, 2.
Findlay, G. H. (1954) *Brit. J. Derm.*, **66**, 16.
Gans, O. (1925) *Histologie der Hautkrankheiten*. Vol. 1. Berlin : Julius Springer.
Hobart, M. H. and Rose, C. F. M. (1955) *J. clin. Path.*, **8**, 338.
Jepson, J. B. and Smith, I. (1953) *Nature, Lond.*, **172**, 1100.
Lyell, A. and Whittle, C. H. (1950) *Brit. J. Derm.*, **62**, 334.
Lowry, O. H., Gilligan, D. R. and Katersky, E. M. (1941) *J. biol. Chem.*, **139**, 795.
Wagner, E. (1866) *Arch. Heilk*, **7**, 463.
Wilson, H. T. H. (1955) *Proc. R. Soc. Med.* (*Sect. Derm.*), **48**, 773.
Zoon, J. J., Jansen, L. H. and Hovenkamp, A. (1955) *Brit. J. Derm.*, **67**, 212.

# *BDELLONYSSUS BACOTI* AS A CAUSAL AGENT OF CUTANEOUS DISEASE.

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CUTANEOUS disease as a result of infestation with the tropical rat mite, *Bdellonyssus bacoti* (Hirst, 1913), although well recognized in North America, does not appear to have been recorded in the dermatological literature of this country. The purpose of this paper is to draw attention to the condition which we believe may be not uncommon, and to report an instance detected in the London area.

Cleland (1913) in Australia provided the first account of this mite attacking a human subject, describing an outbreak amongst the employees of a rat-infested manufacturing stationery concern in Adelaide. The following year cases were noted in Sydney and Western Australia (Hirst, 1914). Subsequently reports have appeared from other parts of the world, including South Africa (Hirst, 1925), Germany (Oudemans, 1931 ; Willmann, 1939), Canada (Spencer, 1937), and New Zealand (Lamb, 1952). However, it is in the United States of America that the majority of descriptions have originated. The first record was that of Bishopp (1923). He stated that the mites were extremely troublesome in certain parts of Texas, the occupants of business premises being particularly affected. Later, Shelmire and Dove (1931) published a detailed account of the ecology and clinical features of an extensive outbreak in the same state. Other reports from that continent include those of Cory (1923), McIntosh (1935), Weber (1940), Riley (1940), Newton (1942), Anderson (1944), Lowell (1946), Rothman and Niederman (1947), Fredrick (1951), and Haggard (1955).

In contrast, the only British descriptions which we have succeeded in tracing are primarily of an entomological nature, being those of Whittick (1943) and Browning (1950). The former author made the first record, briefly mentioning in the course of an account of arachnida of medical importance that the human subject was at times attacked by this parasite, a statement based on the findings of the staff of the British Museum of Natural History in the London area (Hill and Gordon, 1945). Subsequently Browning published a

more detailed report of the experience of this body. The first instance of human involvement had been noted in 1933, when the employees of a firm of printers were attacked. Thereafter, a number of outbreaks had been studied, all of which were confined to the London area with the exception of one which occurred in the city of Cardiff.

## Case Report.

In February 1956 two female members of the staff of a large London departmental store, aged 48 and 55 years, sought advice on account of a recurrent pruritic eruption of 2 and 6 weeks' duration respectively. The condition was strikingly episodic in character, always subsiding within 12 to 24 hours when away from work, only to recur on resumption of duties. Although one of the patients lived alone, the second resided with her family : however, at no time were other members similarly affected. During this period extensive attempts to rid the store of a heavy infestation of black rats were proceeding.

The eruption was observed in only one of the subjects, the other being seen during a period of absence from work. However the exact similarity of the lesions in the two cases was confirmed by the store medical officer and the clinic nurse. The rash consisted of moderately profuse urticarial wheals and papules, the former predominating in most areas. No puncta were seen. Minimal excoriations were present in places. In both cases the eruption was confined to the lower part of the neck and the upper part of the chest.

Actively motile mites, greyish in colour and a little less than 1 millimetre in length, had been found by both subjects on the skin and clothing. Moreover, further investigation had revealed similar creatures in large numbers on the settee and adjacent carpet of the workers' rest room. A specimen was submitted to Mr. T. E. Hughes

Fig. 1.—*Bdellonyssus bacoti*, dorsal view. × 50.

of the Department of Zoology, Birkbeck College, who identified it as *Bdellonyssus bacoti* (Fig. 1).

After removal of the settee (which was found to contain a rat's nest swarming with the mites), and subsequent treatment of the room with chlordane, no further trouble occurred.

## Entomology.

*Bdellonyssus* (= *Liponyssus*) *bacoti* or the tropical rat mite is a small but macroscopically detectable acarine belonging to the family Macronyssidae, the members of which are ectoparasites of reptiles, birds, or mammals. It was first recovered by Hirst (1913) from brown rats inhabiting feluccas at Assiût, Egypt. After the study of further specimens from Africa, Australia, and South America, the same worker elaborated his account (Hirst, 1914). The subsequent taxonomical allegiances of the mite have been described by Herms (1950). Despite repeated attempts to discover the parasite in Britain success was not forthcoming until 1933. In contrast, one or two records of infestation with the mite have occurred each year ever since, a sequence of events highly suggestive of recent introduction into this country (Browning, 1950).

A detailed account of the biology of the organism has been given by Bertram, Unsworth, and Gordon (1946). The life cycle is relatively short, being completed in the region of 11 to 16 days under optimal conditions of temperature and humidity (Skalily and Hayes, 1949). Sudd (1952) has summarised the cycle as follows : " The egg hatches in $1\frac{1}{2}$ days to a larva, which does not feed but moults in 1–2 days to a protonymph. The protonymph takes a blood meal, after which it moults twice, first to a deutonymph and then, without a further meal, to the adult. Adult males and females may mate before either has taken a meal as an adult. Females lay eggs only after they have taken at least one meal, and several successive meals may be taken, each followed by a period of egg laying ". The major host is usually stated to be the brown rat, additional records including the black rat, Egyptian mouse (*Acomys cahirinus*), white mouse and rat, and the golden hamster (Fonseca, 1948). However, in Browning's experience the mite is associated only with the black rat in Britain. After an engorgement the parasite leaves its host, although tending to remain in the vicinity of the nest ; but when in search of a further meal, if a rodent is not available, the mite may travel for some distance in search of an alternative victim.

Claims that the parasite may at times act as a vector have been made in three connections. Dove and Shelmire (1931, 1932) stated that the Texas strain of endemic typhus had been passed on in guinea-pigs by this means. Williams and Brown (1945, 1946) showed that the mite transmitted the filariid worm, *Litomosoides carinii*, a parasite of the cotton rat, *Sigmodon hispidus*. Thirdly, Philip and Hughes (1948) brought forward evidence that the organism of rickettsial pox, *Rickettsia akari*, could be spread amongst mice in this way.

## Clinical Features.

Since the parasite is actively motile its mere presence upon the skin may be accompanied by a sensation of formication in a sensitive subject. The bite,

itself, on occasion produces an abrupt itching pain. Fredrick (1951) has described the primary appearance of a bite as a small punctum surrounded by a minor haemorrhagic areola. This is but rarely seen, however. Irritation often persists for several hours, and occasionally mild fever has been noted. Subsequent objective cutaneous changes may be minimal or totally absent. When present they usually assume characteristics similar to those of our cases, there being urticarial wheals and papules of variable size in the absence of overt puncta. Likewise, the haemorrhagic features typical of many arthropod bite reactions are missing. In adults the lesions are often relatively scanty and transient, whereas young children may present an extensive eruption in which frank vesiculation is at times a prominent feature (Shelmire and Dove, 1931). Later, excoriations and pyococcal infection may mask these changes. Like other arthropod bites the lesions are often grouped, and the overall distribution is determined largely by chance contact and the pressure of clothing. Useful differential diagnostic criteria in this respect are the absence of secondary cases in the home, and the rapid subsidence coinciding with removal from work only to be followed by reappearance on resumption. However, when contact with the source of infestation is short lived (as must often be the case), the eruption is ephemeral and non-recurrent, in all probability medical advice rarely being sought.

Since the mite is primarily a parasite of rats cases almost invariably occur in association with a local abundance of these animals ; thus, restaurants, food stores, and public buildings are common foci of infestation. Browning has noted that a fairly high temperature is usually maintained in affected premises, a finding of probable significance in view of the subtropical habitat of the earlier reports. A history of rodent destruction shortly before the appearance of clinical cases is frequently elicited. Such procedures deprive the parasite of its natural host, and cause it to forage in search of alternative prey which on occasion proves to be man.

## Summary.

The literature relating to *Bdellonyssus bacoti* as a causal agent of cutaneous disease is reviewed. An instance occurring in the London area is described. It seems likely that the condition may be not uncommon in urban communities of this country.

We should like to express our thanks to the consultant staff of St. John's Hospital, and in particular to Dr. R. M. B. MacKenna for his advice and encouragement. The photomicrograph was kindly taken by Mr. R. J. Lunnon, F.R.P.S., photographer to the Institute of Dermatology.

## References.

Anderson, C. R. (1944) *Arch. Derm. Syph., Chicago*, **50**, 90.
Bertram, D. S., Unsworth, K. and Gordon, R. M. (1946) *Ann. trop. Med. Parasit.*, **40**, 228.
Bishopp, F. C. (1923) United States Department of Agriculture, Department Circular 294, p. 1.
Browning, E. (1950) *Ann. trop. Med. Parasit.*, **44**, 124.
Cleland, J. B. (1913) *J. trop. Med. (Hyg.)*, **16**, 43.

Cory, E. N. (1923) *J. econ. Ent.*, **16**, 226.
Dove, W. E. and Shelmire, B. (1931) *J. Amer. med. Ass.*, **97**, 1506.
——— (1932) *J. Parasit.*, **18**, 159.
Fonseca, F. da (1948) *Proc. zool. Soc. Lond.*, **118**, 249.
Fredrick, W. G. (1951) *Industr. Med.*, **20**, 382.
Haggard, C. N. (1955) *Pediatrics, Springfield*, **15**, 322.
Herms, W. B. (1950) *Medical Entomology with Special Reference to the Health and Well-being of Man and Animals*. 4th ed. New York : The MacMillan Company.
Hill, M. A. and Gordon, R. M. (1945) *Ann. trop. Med. Parasit.*, **39**, 46.
Hirst, S. (1913) *Bull. ent. Res.*, **4**, 119.
——— (1914) *Bull. ent. Res.*, **5**, 215.
——— (1925) *Proc. zool. Soc. Lond.*, 49.
Lamb, K. P. (1952) *N.Z. med. J.*, **51**, 320.
Lowell, M. E. (1946) *Arch. Derm. Syph., Chicago*, **54**, 278.
McIntosh, A. (1935) *Proc. helm. Soc. Wash.*, **2**, 62.
Newton, H. D. (1942) *Calif. West. Med.*, **57**, 143.
Oudemans, A. C. (1931) *Ent. Ber., Amst.*, **8**, 312.
Philip, C. B. and Hughes, L. E. (1948) *Amer. J. trop. Med.*, **28**, 697.
Riley, W. A. (1940) *Minn. Med.*, **23**, 423.
Rothman, S. and Niederman, D. (1947) *Arch. Derm. Syph., Chicago*, **55**, 138.
Shelmire, B. and Dove, W. E. (1931) *J. Amer. med. Ass.*, **96**, 579.
Skaliy, P. and Hayes, Jr., W. J. (1949) *Amer. J. trop. Med.*, **29**, 759.
Spencer, G. J. (1937) *Proc. ent. Soc. B.C.*, **33**, 44.
Sudd, J. H. (1952) *Ann. trop Med. Parasit.*, **46**, 158.
Weber, L. F. (1940) *J. Amer. med. Ass.*, **114**, 1442.
Whittick, R. J. (1943) Arachnida. In *A Handbook for the Identification of Insects of Medical Importance*, by J. Smart. London : British Museum (Natural History).
Williams, R. W. and Brown, H. W. (1945) *Science*, **102**, 482.
——— (1946) *Ibid.*, **103**, 224.
Willmann, C. (1939) *Abh. naturw. Ver. Bremen*, **31**, 168.

# TOXIC EPIDERMAL NECROLYSIS: AN ERUPTION RESEMBLING SCALDING OF THE SKIN.

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THE purpose of this paper is to describe the course of events in four cases of a toxic eruption which closely resembles scalding in its clinical appearance and in the sensations to which it gives rise in the patient. It is probable that this type of reaction is not uncommon and that it has been classified as a toxic eruption, toxic erythema with blistering, or something similar. But the features of the reaction are so definite and they concern the epidermis so intimately—to the exclusion of the dermis—that I believe it to be useful and important to recognize this sequence of events as a distinct syndrome in which some circulating toxin specifically damages the epidermis and results in its necrosis.

## CASE REPORTS

CASE 1.—Eight years ago a woman aged 34 came to Dr. C. H. Whittle's clinic in Cambridge with a history that she had suffered from five attacks of a blistering eruption which was always preceded by pain in the right loin. She looked perfectly well but assured us that she now had the pain and that the blisters could be expected within a matter of hours. She did not seem agitated by the prospect, but we admitted her to the ward for observation, and there straightway developed a blotchy erythema, mostly on the thighs and buttocks. The skin was tender and she felt ill with fever.

The next day the red skin began to loosen and could be pulled and pushed about with the finger into creases and wrinkles, having (Fig. 1) separated so extensively that it had an extraordinary mobility, though it would rupture if it was pulled too hard. Apart from this spontaneous epidermolysis neighbouring areas which were still apparently normal could be loosened by the finger in what amounted to a caricature of the Nikolsky test. The formation of blisters was an incident in the process and depended upon the collection of fluid in the potential space beneath the loosened layer. The blisters which did form were flaccid (Fig. 2), the fluid within them was distributed in levels according to the force of gravity, and the extent of the blister could always be enlarged by the application of external pressure. Soon the loose skin peeled off in shreds and exposed a dark red, raw surface, very tender, and liable to bleed if touched (Fig. 3). It was later evident that the force of the toxaemia had spent itself within the first few days for she soon began to feel better, the temperature abated, and no new lesions appeared. But it took some weeks for the skin to heal, which it did without scarring. After the initial toxaemia had subsided the severity of the skin condition contrasted with the untroubled demeanour of the patient; her serenity proved justifiable in the event.

We blamed her bad teeth for the eruption and certainly she had a minor relapse after dental extraction, but she had another relapse later for no ascertainable reason. We failed to find any local cause for her loin pain, and either bacteria or viruses in her blisters. Later on she came under the care of the late Dr. W. J. O'Donovan, with a recurrence of the eruption. His investigations were likewise negative, and a

FIG. 1.

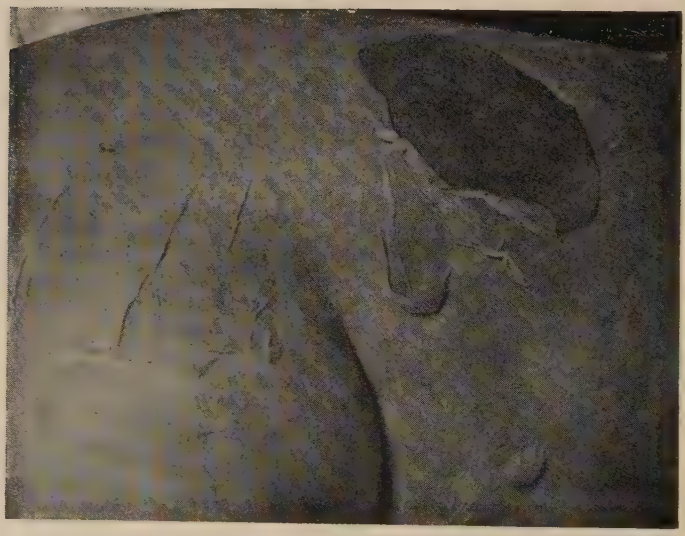

FIG. 2.

psychiatrist attributed her eruption to her poor intellect and hysterical personality. Finally, her general practitioner, Dr. W. H. Parkinson, wrote to say that he had given her Dover's powder with aspirin for a backache, and that she had had haematemesis with angioneurotic oedema which needed adrenalin by injection for its control. It is possible that the toxin in her case was a drug and that she had discovered and exploited her idiosyncracy.

Fig. 3.

I saw the next two patients in Edinburgh. Case 2 was a woman aged 69, and she had woken one night with a sore throat, and had vomited. The next day the skin of her limbs was reddened and tender and looked as though it had been scalded. She was then admitted under Professor G. H. Percival, and by this time the skin had begun to blister. There was the same loosening of the skin which could be pushed about with the finger at will. This patient experienced more pain than the previous one and when the skin peeled from the affected areas the exposed surface was so tender that she needed physeptone to get relief. Her recovery was complete, and appeared to be accelerated by giving ACTH. We did not find any precipitating cause. She had had a similar attack nine years previously, which, although it had been milder, had involved the mouth.

Case 3.—The third case, a man, died after the raw areas of skin had completely healed. He was aged 53, and was seen by Professor G. H. Percival at the request of Dr. W. A. Alexander. The man, a known case of aortic valvular disease of the heart, had been admitted in a stupor, which had followed on fever, sweating, and confusion. He was desperately ill and severely dehydrated, and this probably accounted for the fact that no blisters formed on his skin, which otherwise produced the same features as the other cases—erythema, followed by loosening of large areas of skin, and peeling, which left raw areas. There was no doubt that his skin was tender, for when it was touched he stirred and groaned, and this was at a time when he was particularly difficult to rouse. He revived with ACTH and aureomycin and recovered full consciousness ; his skin healed, and he seemed to be well on the road to recovery. But later he became breathless and developed a haemorrhagic state manifested by purpura and haematuria, though there was no return of the original type of eruption. At post-mortem examination there was found an aortic stenosis of presumed rheumatic aetiology, acute glomerulo-nephritis and pyelo-nephritis, and abscesses in the brain and spleen. It seems possible that the kidneys were affected by the same toxin as that which damaged the skin, and that the pyaemia was a secondary phenomenon.

Case 4.—I saw the fourth case, a woman of 54, in Aberdeen at the request of Professor H. W. Fullerton, and, for the extent and severity of the eruption, this was the most developed of all the cases. The cause was suspected to be butazolidin taken for rheumatoid arthritis, as the skin lesions developed within three weeks of having taken the drug for the first time. The first sign of intolerance was puffiness of the eyes, and was followed by fever and by difficulty in swallowing on account of pain. The usual course of events followed. About 80% of the body surface was affected, although not quite all of this subsequently became raw. In addition the eyes, mouth, throat, and bronchial tree were affected. The initial toxaemia was prolonged by absorption from the secondary infection on the skin and in the chest and consequently the fever did not subside until the skin lesions had almost healed. The healing was much slower than in the other cases. The patient hovered on the edge of life for some days and was only recalled by the very skilled nursing care which she received, and by the use of "Complan", a highly concentrated liquid diet. During this critical period she was nursed on an "Emesay" turning frame which proved invaluable, from the point of view not only of dressing her back, but also of enabling her to expectorate the necrotic bronchial mucosa which was hindering her breathing. Her eyelids adhered to one another, for their surfaces had become raw, and the eyelashes had exfoliated. But Dr. Beatrix Law, the ophthalmologist, successfully prevented the adhesions from organizing, and the globes were preserved unharmed. The skin eventually healed well. Later the nails and much of the hair were shed.

*Histology.*—The histology of the skin changes was investigated in the first three cases, but not in the fourth on account of the critical state of the patient and her presumed hypersensitivity to at least one drug. The major damage was confined to the epidermis and consisted of a necrosis of the epidermal cells. The whole thickness of the epidermis was affected in Case 2 and the blister had formed between the dermis and epidermis (Fig. 4), but in Case 3 the necrosis had been more superficial and the split, for there had been no visible blister, was intra-epidermal. It may be that this difference is only one of degree since in some parts of the biopsy from Case 2 the lower levels of the epidermis had been spared (Fig. 5). A notable feature in Case 3 was the lining of altered epithelium, flattened cells with eosinophilic cytoplasm and dark, pyknotic nuclei, which extended throughout the follicles and into the sebaceous glands, whereas the sweat ducts and sweat glands appeared to have escaped damage. One wonders whether the toxic substance could have been excreted in the sebum in this case. The biopsy from Case 1 was taken in the healing stage and therefore gave no clue to the depth of the original necrosis. It showed an actively regenerating epidermis with the desiccated remains of the necrotic skin overlying it.

## Discussion.

It seems, then, that these four cases are clinically comparable since in all of them large areas of skin have loosened. The loosening has been preceded by erythema and tenderness, and has been followed by peeling, so that a dark red, excessively tender surface has been revealed which has healed rapidly without scar formation. In three of the cases fluid collected beneath the loose skin

and formed flaccid blisters. The clinical resemblance to scalding was close, both in the appearance of the lesions and in the sensations of the patient, but it is not complete in that there was no shock or exudation such as one sees after

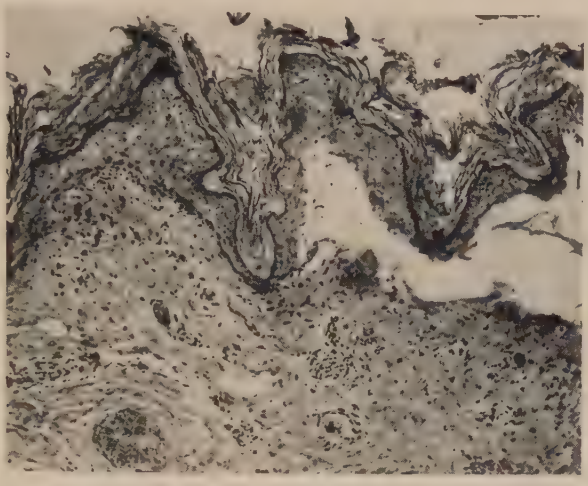

FIG. 4.

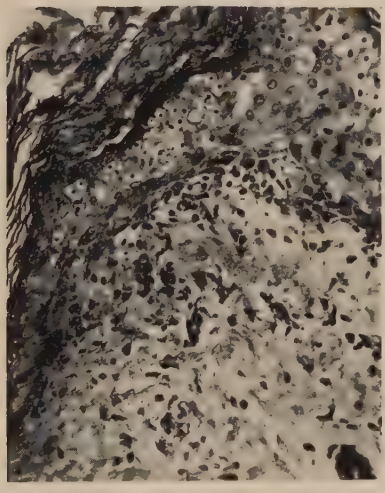

FIG. 5.

a scald. There is no doubt that Case 4 with her 80% involvement of the skin would never have survived a scald of such extent. Nevertheless the analogy with a scald is appropriate, for it is evident that in scalding, as in this syndrome, the damage all occurs at the beginning of the illness and the subsequent events

are the logical result of the damage and are proportional to its severity. As a corollary to this one can predict complete recovery of the skin provided that the toxaemia does not irreparably damage such organs as the lungs and kidneys, and provided that the patient can be nursed through the early stages of healing. This is a situation in which skilled nursing is of paramount importance and there is no doubt that the last patient owes her life to the nurses of the City Hospital, Aberdeen, as well as to her own courage and endurance. The nursing was made easier by the turning frame, which I can certainly recommend for ill patients who have extensive raw surfaces, particularly if, as in this case, postural drainage of the chest is a necessity.

The prodromal symptoms which these patients suffered were presumably the result of toxaemia. As regards the nature of the toxin, a drug, butazolidin, was suspected in Case 4, but in the other cases no cause could be found. In Case 1 a subsequent attack occurred and suspicion was eventually directed towards drugs because of a severe, but different, reaction which followed the exhibition of Dover's powder with aspirin. Case 3 died with pyaemia and nephritis ; perhaps the toxin which damaged the skin damaged the kidneys also, and the infection was secondary.

It is essential to stress that the pathogenesis of this syndrome is epidermal necrosis, in distinction to reactions such as erythema multiforme, dermatitis herpetiformis, and pemphigoid which depend upon dermal inflammatory changes. In these latter diseases the blisters have a different character which is consistent with their mode of formation by fluid which, exuding from dermal vessels, collects beneath and raises the epidermis. They are therefore tense, and they break rather than spread when pressed upon. Blisters are almost incidental to the syndrome under discussion. Fluid fills the cleft which has been opened up by epidermolysis, and since the amount of fluid is small in relation to the potential space the blisters are flaccid, can be spread readily by external pressure, and often display fluid levels.

This disease is not a form of pemphigus. The prodromal symptoms of toxaemia, the development of large areas of epidermolysis preceding the blistering, the tender skin, the peeling, and the uninhibited tendency towards healing form a procession of events which distinguish the present syndrome clinically. The histological changes in pemphigus—dilapidation of the epidermis with release of epidermal cells into the blister fluid—are distinct from the epidermal necrosis and practically acellular blister fluid of the reaction under discussion.

## *Conclusion.*

I have tried to describe a clinical syndrome which resembles scalding both objectively and subjectively, brought about by necrosis of the epidermis, which results from toxaemia. The toxaemia, which is short-lived, produces

the prodromal symptoms. If the patient survives the initial toxaemia, and if he can be nursed through the subsequent complications, he can look forward to a complete recovery ; but should the toxaemia be repeated at any time the skin will be liable to react in the same way as before.

Such a very definite syndrome as this is should have a name to distinguish it from other toxic erythemas and bullous eruptions, and I suggest that it might be called " Toxic epidermal necrolysis ". The word necrolysis avoids the ambiguity of epidermolysis and the picture of ulceration and gangrene which is conjured up by necrosis. It avoids any reference to blistering, which is not an essential part of the process and is therefore better omitted.

Since I have written this paper Dr. J. Cowley has brought to my attention an article by Lang and Walker (1956). They described a case of an unusual bullous eruption in an African and I have no doubt that their case belongs in this syndrome.

I am indebted to Mr. T. C. Dodds and Dr. John Smith for photographs.

## Reference.

Lang, R. and Walker, J. (1956) *S. African med. J.*, **30**, 97.

# THE MECHANISM OF COMEDO FORMATION IN ACNE VULGARIS.

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The mechanism of the production of the comedo is still uncertain (Goldsmith and Hellier, 1954). It seems that Plumbe (1824) was the first to state clearly and categorically that obstruction of the sebaceous follicle with damming up of sebum was the primary change in acne. Hypotheses abound but writers of modern textbooks usually avoid the subject. Classification of the theories which have been proposed is difficult because there is much overlapping and intermingling of the suggested factors. Very broadly speaking they fall into two main groups :

A—(i) Primary hyperkeratosis ;
(ii) primary alteration in the sebum ;
(iii) primary bacterial infection.

B—(i) Primary weakness of hair growth ;
(ii) primary weakness of musculi arrectores pilorum.

At first sight it might seem that the first three subdivisions were unrelated but, in fact, there is such interplay between them that they cannot logically be separated.

## *Primary Hyperkeratosis.*

Unna (1896) regarded hyperkeratosis as the fundamental cause of the comedo, the rest of the process being purely mechanical. Kyrle (1925) went one step further. He regarded the hyperkeratosis as part of the general tissue hypertrophy which affected the epidermis in particular and occurred normally at puberty. Barber (1948) was more definite ; he thought that comedones resulted from the stimulation to keratinization caused by androgens. The view that hyperkeratosis was the primary change was supported by Eliascheff (1936) and Cordero (1949). On the other hand Payne (1899) said that the cause could not be mechanical obstruction because the orifice of the follicle was usually wide and patent.

O'Brien (1952) has described the " follicular keratin ring "—a concentric lamellated keratin ring or tube around the follicular opening. Its upper end is continuous with the horny layer of the skin surface and its lower end is attached firmly to the inner wall of the neck of the follicle. O'Brien (1951,

1952) suggested that the primary change in comedo formation was obstruction at this ring.

*Primary Alteration in the Sebum.*

Most but not all authors agree that there is always increased production of sebum in acne vulgaris, but increased flow alone cannot cause a blackhead. In fact Leopold (1888) had difficulty in understanding how seborrhoea and comedo could occur together until he realized that a comedo was primarily a parakeratosis of the skin including the sebaceous gland. Bulkley (1885) thought that the secretion of the sebaceous gland became altered and that the lining cells of the gland failed to undergo complete fatty transformation ; Mackenzie (1894) regarded the essential cause of the comedo as an " accumulation of the imperfectly involuted sebaceous cells and abortive hairs to block the ducts ". Fischer (1937) stated that the primary change seen was always hyperkeratosis which was stimulated by abnormal sebum ; he gave no reason for this belief. Payne (1899) thought that the sebum was unduly thick.

Lorenz, Graham, and Wolf (1953) claimed that in acne vulgaris there was a typical emotional pattern characterized by episodes of anger followed by periods of remorse. They found that day-to-day fluctuation in the secretion of sebum was the same in patients with and without acne, with an increased secretion on the face during periods of anger and decreased secretion during times of remorse. They suggested that these abrupt phasic alterations in sebaceous activity might take part in comedo formation though they admitted that the mechanism involved was not clear. Sulzberger and Baer (1954) criticized this work adversely. They suggested that the emotional factors primarily affected the secretion of sweat which in turn influenced the delivery of sebum to the surface but that there was no direct influence of the emotions on the secretion of sebum.

Unna (1896) denied that there was any abnormality in the composition of the sebum, and Kile, Snyder, and Haefele (1950) were unable to detect any such abnormality.

*Primary Bacterial Infection.*

For many years after Unna and Sabouraud had stressed the importance of the bacterial factor in acne vulgaris their writings were quoted with approval, and acne was regarded primarily as an infective disease. Sabouraud (1902) regarded the primary change in comedo formation as infection of the contents of the upper part of the follicle with microbacilli. This view was supported by Whitfield (1912) and by most other dermatologists. Of recent years the bacillus of Unna and Sabouraud has been thought to have no primary aetiological importance except by Gougerot (1950), and the microbial theory has fallen into disfavour. It has been revived in an entirely different way by O'Brien (1951,

1952) who believes that infection of the follicle with staphylococci is the stimulus to the change in the " follicular keratin ring " which leads to obstruction of the mouth of the follicle.

*Primary Weakness of Hair Growth.*

This aspect of the subject has been reviewed and studied in considerable detail by Grant (1950). It seems that the view of acne as primarily a disorder of the hair follicle rather than of the sebaceous apparatus began with Simon (1842). Rindfleisch (1872) had a simple explanation for the comedo. He said that the hair scoured out the pilo-sebaceous follicle as it grew, thus removing the sebum. With over-secretion there would be retention because the hair could not remove it adequately. Liveing (1887) said that Rindfleisch was correct as far as he went but that he had missed the essential point—the gradual accumulation of minute hairs which never grew long enough to protrude and which became matted with sebum and scales prevented the escape of the contents of the follicle and thus formed a comedo.

Kaposi (1880) pointed out that the sites of comedones were the sites of lanugo hairs. The sebaceous duct formed an acute angle with the hair follicle. The lanugo hair, in growing, hit the wall near this angle and then sometimes curled downward. It then acted as an irritant causing proliferation of the epithelium and, thus, blockage. This happened particularly at puberty when there was especially rapid growth of hair. Older hairs displaced by rapidly growing new hairs became pushed into the sebaceous duct and with cell debris formed the comedo.

Jamieson (1894) regarded the change from downy hair to coarser hair as first among the local causes of acne. The less perfect is this change, the greater is the tendency to acne. Mackenzie (1894) thought the essential cause of the comedo was " accumulation of the imperfectly involuted sebaceous cells and abortive hairs to block the ducts ".

Payne (1899) was one of the few writers who gave a fair amount of space to an account of comedo formation. He said that they arose in connection with rudimentary or imperfect hairs which either did not reach the surface or projected only slightly ; their sebaceous glands were relatively large and they could not carry off the sebum as did the growing larger hair. Bregman (1937) agreed that comedones arose at the site of lanugo hairs. Csillag (1914), who described lanugo-comedones containing 25–30 lanugo hairs arising from the same follicle, stated that ordinary comedones contained lanugo hairs which were too short to reach the surface of the skin.

Sulzberger and Berger (1949) and Sulzberger and Witten (1951) suggested that lanugo hairs, representing a vestigial organ, could not keep the follicle openings as patent as could heavier hairs. At puberty the sex hormones caused

an increase in thickness of the horny layer through which the lanugo hairs could not push.

The only major clinical investigation of this aspect of the problem was carried out by Grant (1950, 1951). He confirmed the observation of Milton (1872) that lanugo hairs did not issue from follicles containing comedones. The number of hairs contained in a blackhead was roughly proportional to the size of the blackhead. In a large number of subjects an area immediately above the spine of the scapula was examined and the degree of acne was noted. A special note was made of whether part of the succeeding hair could be seen penetrating the orifice at the base of the mature hair, and it was found that a high proportion of follicles with absent replacement hairs was usually associated with more severe acne. It was particularly noticeable that, in individual patients followed over considerable periods, exacerbations of acne were accompanied or preceded by a fall in the proportion of follicles containing both a mature and a succeeding hair. Grant suggested that where there was hyperkeratosis and seborrhoea as a result of androgenic stimulation the absence of a hair effectively piercing the mouth of the follicle would make the discharge of sebum and debris very difficult and would thus lead to comedo formation. Failure of the hair to penetrate might be due to inadequate growth rate or to the hair becoming curled within the follicle ; the latter mechanism was probably uncommon. There was a dynamic polarity between the production of sebum and of hair in any one follicle, so that a follicle which produced more sebum would produce less hair. This physiological polarity is reminiscent of the views of Jausion (1949) and fits in with the anatomical observation of Way (1931) that in any one follicle the size of the sebaceous gland is usually in inverse proportion to the diameter of the hair.

### *Primary Weakness of Musculi Arrectores Pilorum.*

Bregman (1937) was struck by the inability of the various hypotheses of comedo formation to explain the rarity of blackheads on the scalp. He observed that acne occurs in follicles where the sebaceous gland is large and the hair, being only a lanugo hair, has a weak arrector pili muscle. When there is seborrhoea this muscle is too feeble to expel all the sebum that accumulates and so forms a comedo.

Earlier suggestions can be related to Bregman's idea. According to Starling (1926), the extrusion of sebum is a function of the arrectores pilorum muscles. When they contract the hair is erected and sebum is squeezed out on to the hair and surrounding skin.

Bulkley (1885) said that, in acne, the glands lost their tone and their walls lost their contractile power. Payne (1899) pointed out that the pilomotor muscles were badly developed when attached to follicles containing rudimentary

hairs and that these muscles helped to expell sebum. In discussing the pathology of comedones, Stelwagon and Gaskill (1923) wrote : " It is possible, too, that a relaxed condition of the arrectores pilorum muscles may also be instrumental in their production by permitting the secretion to collect and harden."

## Discussion

It can be seen that, on the one hand, theories depending primarily on hyperkeratosis, altered sebaceous secretion, and infection are closely related while, on the other hand, those depending on a primary weakness in hair growth and on feebleness of the arrectores pilorum muscles are even more intimately connected. The final answer cannot yet be given, but it seems likely that both groups are pertinent. The mechanism is not necessarily the same in all the conditions in which comedones occur. The mechanism in oil acne has been studied by Fischer (1937) and by Grant (1950).

In seborrhoeic states, and therefore in acne vulgaris, the earliest change in the skin is probably the " kérose " of Darier (1907). This involves hyperkeratosis. Nevertheless, as Hamilton (1941) points out, the mere presence of hyperkeratosis is no proof that it is a major factor in " acnegenesis ". Whether the composition of the sebum is altered in acne or not is unknown and it seems useless to speculate on this point until the biochemists have given a definite answer. It would then be necessary to see if any change found were a stimulus to hyperkeratosis or whether it involved increased viscosity which would hinder drainage. The infective element is difficult to assess. The Unna-Sabouraud bacillus is no longer regarded as being aetiologically important, but cocci cannot be completely exonerated. It seems certain that they can take part in producing some of the secondary lesions in acne, but the work of O'Brien (1952) is not by itself convincing enough for them to be regarded as primary factors in the formation of blackheads. Related to this are the findings of Cronk and his colleagues (1956*a*, *b*) that the good results obtained by treating acne vulgaris patients with tetracycline are unrelated to the antibiotic sensitivity of the organisms grown from the lesions.

The evidence, especially that produced by Grant (1950), that weakness of the hair in the follicle is an important factor is impressive. Further investigation is needed to decide how important is the feebleness of the musculi arrectores pilorum.

## Conclusions and Summary.

The various hypotheses of the mechanism of comedo formation in acne vulgaris have been reviewed. It seems likely that comedones form in pilo-sebaceous follicles in which the hair is rudimentary. There is seborrhoea, and hormonal influences cause follicular hyperkeratosis. The pilo-sebaceous

follicle being one physiological entity, the more sebum that is produced the smaller amount of keratin (i.e. hair) that is formed. Follicles with lanugo hairs usually have small pilomotor muscles.

Thus excess sebum is formed and meets a narrowed hyperkeratotic follicular ostium. The small hair cannot push its way through the ostium and, therefore, cannot act as a drain for the sebum. At the same time, the pilomotor muscles are too small and weak to help propel the sebum to the surface.

The sebum may be abnormal physically or chemically. If it be too viscid, obstruction will be assisted. A changed chemical composition might stimulate the overgrowth of horn at the ostium. Insufficient is yet known about this and about the possible role of coccal infection for any useful conclusion to be drawn concerning their importance.

## References.


Barber, H. W. (1948) *Modern Trends in Dermatology.* First Series. Edited by R. M. B. MacKenna. London : Butterworth & Co. (Publishers) Ltd, p. 125.

Bregman, A. (1937) *Arch. Derm. Syph., Chicago,* **36**, 758.

Bulkley, L. D. (1885) *Acne : Its Etiology, Pathology, and Treatment.* London : J. & A. Churchill, p. 111.

Cordero, A. A. (1949) *Día méd.*, **21**, 941.

Cronk, G. A., Naumann, D. E., and Garrison, C. (1956*a*) *Antibiot. Med.*, **2**, 153.

——— ——— Heitzman, E. J., Marty, F. N., McDermott, K. J., and Vercillo, A. A. (1956*b*) *Arch. Derm., Chicago,* **73**, 228.

Csillag, J. (1914) *Arch. Derm. Syph., Wien,* **117**, 3.

Darier, J. (1907) *Ann. Derm. Syph., Paris,* 4, sér. **8**, 3.

Eliascheff, O. (1936) *Nouvelle Pratique Dermatologique.* Paris : Masson et Cie. Vol. **6**, p. 537.

Fischer, H. (1937) *Arch. Derm. Syph., Wien,* **176**, 138.

Goldsmith, W. N. and Hellier, F. F. (1954) *Recent Advances in Dermatology.* 2nd ed. London : J. & A. Churchill Ltd, p. 186.

Gougerot, H. (1950) *Dermatologie.* Paris : Maloine, p. 289.

Grant, R. N. R. (1950) *A Predisposing Factor in Acne Vulgaris.* Thesis ; Cambridge.

——— (1951) *Clin. J.*, **80**, 260.

Hamilton, J. B. (1941) *J. clin. Endocr.*, **1**, 570.

Jamieson, W. A. (1894) *Brit. J. Derm.*, **6**, 10.

Jausion, H. (1949) *Rev. Morpho-Physiol. hum.*, no. 2, p. 33.

Kaposi, M. (1880) *Pathologie und Therapie der Hautkrankheiten.* Wien & Leipzig : Urban und Schwarzenberg, p. 159.

Kile, R. L., Snyder, F. H. and Haefele, J. W. (1950) *Arch. Derm. Syph., Chicago,* **61**, 792.

Kyrle, J. (1925) *Vorlesungen über Histo-Biologie der menschlichen Haut und ihrer Erkrankungen.* Wien & Berlin : Julius Springer. Vol. **1**, p. 199.

Leopold, H. (1888) *Mitttheilungen aus der dermatologischen Klinik des königlichen Charité-Krankenhauses zu Berlin,* **7**, heft 4, 10.

Liveing, R. (1887) *A Handbook on Diseases of the Skin with Especial Reference to Diagnosis and Treatment.* 5th ed. London : Longmans, Green, and Co., p. 218.

Lorenz, T. H., Graham, D. T. and Wolf, S. (1953) *J. Lab. clin. Med.*, **41**, 11.

Mackenzie, S. (1894) *Brit. J. Derm.*, **6**, 304.

Milton, J. L. (1872) *Edinb. med. J.*, **18**, 27.

O'Brien, J. P. (1951) *Aust. J. Derm.*, **1**, 118.

——— (1952) *Arch. Derm. Syph., Chicago,* **65**, 206.

Payne, J. F. (1899) *A System of Medicine by many Writers.* Edited by T. C. Allbutt. London : Macmillan and Co., Limited. Vol. **8**, p. 752.

Plumbe, S. (1824) *A Practical Treatise on Diseases of the Skin, comprehending an Account of such Facts as have been Recorded on these Subjects, with Original Observations.* London : Underwood, p. 16.

Rindfleisch, E. (1872) *A Manual of Pathological Histology to Serve as an Introduction to the Study of Morbid Anatomy.* London : New Sydenham Society, Vol. **1**, p. 388.

Sabouraud, R. (1902) *Maladies du Cuir Chevelu.* Paris : Masson et Cie, Vol. **1**, p. 60.

Simon, G. (1842) *Med. Ztg., Berl.*, **11**, 37.

Starling, E. H. (1926) *Principles of Human Physiology.* 4th ed. London : J. & A. Churchill, p. 985.
Stelwagon, H. W. and Gaskill, H. K. (1923) *A Treatise on Diseases of the Skin for Advanced Students and Practitioners.* 9th ed. Philadelphia and London : W. B. Saunders Company, p. 1083.
Sulzberger, M. B. and Baer, R. L. (1954) *The Year Book of Dermatology and Syphilology* (1953–1954 *Year Book Series*). Chicago : The Year Book Publishers Incorporated, p. 392.
——— and Berger, S. S. (1949) *Bull. med. Soc. Co. King's*, **28**, 94.
——— and Witten, V. H. (1951) *Med. Clin. N. Amer.*, **35**, 373.
Unna, P. G. (1896) *The Histopathology of the Diseases of the Skin.* Translated by Norman Walker. Edinburgh : William F. Clay.
Way, S. C. (1931) *Arch. Derm. Syph., Chicago*, **24**, 353.
Whitfield, A. (1912) *Brit. med. J.*, ii, 286.

# A CASE OF PERSISTENT KERION-LIKE ECZEMATOUS DERMATOSIS.

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THE case described below is that of a boy with an unusual eruption on the face and scalp which proved resistant to treatment but gradually disappeared after running a course of eight months.

## CASE REPORT.

A Scots lad aged 16 years. Occupation, clerk.

*History.*—The patient was well until the end of September 1955 when he developed a painless "boil" on his left cheek. A few days later two similar lesions appeared on the scalp and forehead. They gradually increased in size and when he was first seen on 18 October 1955 the lesions were raised erythematous plaques, about one inch in diameter with beads of sero-pus exuding from the gaping follicles. There was some degree of eczematization of the skin immediately surrounding the lesions. The clinical appearance suggested an animal ringworm kerion, but no fungus could be demonstrated on repeated examination.

Despite various local applications the condition became worse, fresh lesions appeared on the forehead and cheeks, and he was admitted to hospital on 26 November 1955.

There was no previous episode of skin disease and no personal or family history of allergy. There was no history of drug ingestion prior to the onset of the eruption or of contact with animals. His left eye is absent, the result of an accident in childhood.

*Condition on admission.*—The patient was apyrexial and showed no systemic upset.

The eruption was confined to the face and scalp. In the interval of six weeks since his first visit, the lesions had to some extent lost their pronounced kerion-like appearance and were more eczematous. All showed peripheral extension. The lesion on the scalp showed the greatest increase in size and was now a boggy, circular area, sparsely covered with hair, about two inches in diameter. Hairs remaining on this patch were easily and painlessly epilated and sero-pus exuded from some of the dilated follicles. The hair around the lesion was matted and a moderate degree of pityriasis capitis was present. The lesions on the forehead, left temporal region and the right cheek were raised, discoid and kerion-like, and a raised, indurated, eczematous plaque involved almost the whole of the left cheek. There were a few small eczematous patches over the right mandibular region (Fig. 1.) There was no regional adenitis.

*Investigations.*—Repeated microscopical and cultural examinations for fungus were negative.

Wood's light showed no fluorescence.

Trichophytin, Mantoux, W.R. and Kahn tests were negative.

*Bacteriology.*—In addition to the usual bacterial flora of the skin, *Ps. pyocyanea* was isolated on one occasion.

Blood examination: Hb. 112%; W.B.C. 8300; E.S.R. 24 mm. in one hour. Film showed R.B.C. and platelets normal. There was a relative polymorphonuclear leucocytosis with a slight eosinophilia.

Serum proteins: Albumin 4·45 g.%; globulin 3·35 g.%.

Plasma chlorides, sodium and potassium were normal.

Skiagram of the chest showed normal heart shadow and lung fields.

*Histology.*—Scalp (Dr. T. Bird).—There is marked acanthosis and parakeratosis, with an occasional intra-epidermal vesicle and a small area of ulceration at one edge. The dermis is thickened, contains many new thick-walled capillaries and its structure is obscured by a dense inflammatory cell infiltrate. This consists of neutrophil and

Fig. 1.

eosinophil polymorphs, especially in the superficial layers, with a larger number of lymphocytes and histiocytes in the deeper layers, extending in many places into the muscle. Degenerate hair shafts and follicles are seen in places, and around these and some of the sweat glands eosinophils are more conspicuous (Fig. 2).

In addition to haemalum and eosin, sections were stained by Gram, Gridley, periodic acid-Schiff, Kligman's modified P.A.S., and toluidine blue, but no fungi or other organisms were demonstrated.

*Course.*—The condition steadily deteriorated during November and December 1955 despite systemic treatment with potassium iodide (10 grains *t.i.d.* for four weeks), penicillin (0·5 million Oxford units *b.d.* for ten days), oxytetracycline (250 mg. *q.i.d.* for ten days) and a variety of local applications including calamine lotion, 1% ichthammol in lotio calaminae oleosa B.P.C., ½% silver nitrate soaks, 1% ammoniated mercury in soft paraffin, 1% aureomycin cream and Vioform cream.

In January 1956 the kerion-like lesions on the right eyebrow and right infra-orbital regions received x-ray therapy (100 r twice weekly to a total of 600 r). Slight local improvement was observed for a time, but later all the lesions deteriorated

markedly and on 29 January 1956 treatment with cortisone 100 mg. daily was begun. There was an immediate and marked improvement, the kerion-like lesions flattened and the eczematous areas became paler and much drier. This improvement was most evident on the irradiated areas. On 2 February 1956 the dose of cortisone was reduced to 50 mg. daily and within two days the condition relapsed. The lesions on the scalp, forehead, left temporal region and right side of face were once again swollen, and similar kerion-like patches appeared on the preauricular areas. The eczematous reaction on the left cheek was very active and fresh exudative patches developed on the chin, sides of the neck and retro-auricular areas. The dose of cortisone was increased to 100 mg. daily but as no improvement was observed, it was further increased to 150 mg. daily. Although this was continued for two weeks the only change noted was slight improvement in the eczematous areas.

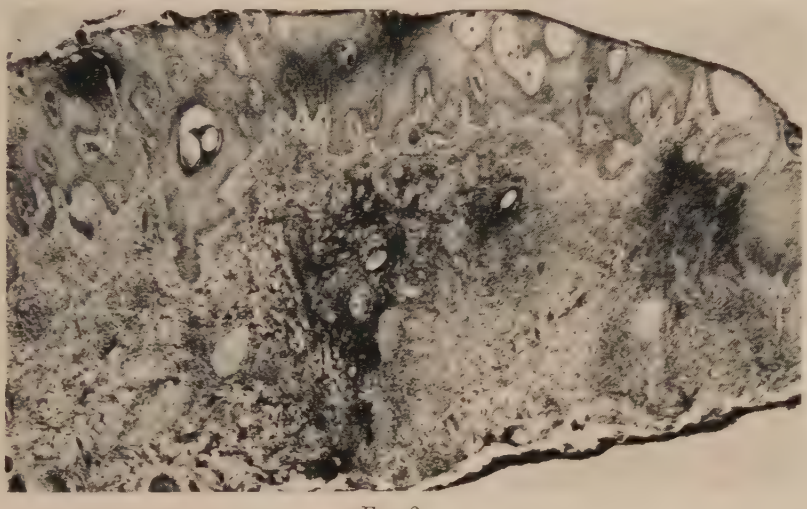

FIG. 2.

At the end of February the previously irradiated regions on the right forehead and right cheek had obviously improved, and at the beginning of March the large kerion-like patch on the scalp was also treated with x-rays (600 r in divided doses). During March 1956 all the boggy kerion-like lesions gradually subsided and healed. The first to disappear were those which had received x-ray treatment.

The weeping exudative patches on the face and neck were slower to improve and towards the end of March progress was halted. In April improvement was again evident, and during this period of involution x-ray therapy was given to the more resistant eczematous plaques on the chin and the left malar region. When he was discharged from hospital on 27 April 1956 all the lesions had healed. One month later there was no recurrence. Two months after discharge it was found that the facial lesions showed no scarring except that on close examination the sites of the kerion-like lesions could be identified by slight enlargement of the follicular openings. There was some scarring with sparse hair regrowth at the site of the kerion-like lesion on the right frontal region of the scalp.

## DISCUSSION.

The only comparable case we have been able to discover in the literature was that shown by Beck and Whittle (1953) to the Royal Society of Medicine as

" Granuloma of Face. For Diagnosis ". The clinical picture was one of kerion which finally healed after a period of eight months. In the discussion which followed, Dr. Forman and Dr. Brain appeared to accept the clinical diagnosis of kerion but the authors were reluctant to agree because of the negative laboratory findings. Dr. Whittle now informs us that since January 1953 this patient has had recurrent attacks of similar lesions on both cheeks. When he saw her in July 1956 she had a shiny, bluish-red, oval plaque, 6 cm. diameter on the right cheek and a few small " blind boils " on the left cheek. In comparing his patient with the description and photographs of ours Dr. Whittle writes : " there is a macroscopic and microscopic similarity in the lesions though the subsequent course has been different. There have been no true eczematous reactions, but the earlier lesions looked rather like blind boils. There have been recurrences of similar lesions since the patient was shown, but on healing the skin appears absolutely normal and there is no scarring. Drugs as an agent can now be completely and finally excluded."

The kerion-like character of the lesions in our case led to a comparison with the condition described by Ferguson Smith (1938) under the name of " Possible Trichophytic Granuloma ". This author described two cases of chronic granulomatous lesions on the face, trunk, extremities and genital areas. In the second case mycelium was demonstrated but Dr. Ferguson Smith now kindly informs us that he regards it as a contaminant and believes his cases to be similar to one described by Goldsmith (1941) as pyodermite vegetante (Hallopeau). Goldsmith closely related pyodermite vegetante to pemphigus vegetans but regarded them as separate clinical entities ; but we agree with Lever (1954) that the former is a relatively benign variant of pemphigus vegetans. Throughout the course of our patient's illness there were no lesions on the axillae, groins, genitals or mucous membranes of the mouth and there was no clinical or histological evidence to suggest pemphigus vegetans.

Nummular eczema, infectious eczematoid dermatitis and the exudative discoid and lichenoid chronic dermatosis of Sulzberger and Garbe came under consideration but the clinical features of our case did not warrant any such diagnosis. Close questioning of the patient ruled out any probability of a drug eruption. The deep mycotic conditions were also considered but they were rejected as there was no supporting evidence.

Our failure to establish a diagnosis precluded any specific therapy. The disease was apparently uninfluenced by local applications including hydrocortisone and various antibiotics. There was, however, a marked improvement after the first few days of cortisone therapy, but this good response was not maintained and after a considerable period only the eczematous areas showed slight improvement ; higher doses of cortisone might have been more effective.

It seems that x-ray was the only treatment which influenced the lesions to any appreciable extent, for although the irradiated areas relapsed in the general

deterioration which followed the reduction of dosage of cortisone, when resolution eventually took place these sites were the first to show progressive improvement and were also the first to heal completely. However, we believe that x-ray merely hastened the natural resolution of the disease since healing occurred not much later in the untreated areas.

The report of a single case is often of little value but we hope that this account may stimulate interest in what appears to be a rare but definite clinical entity.

## Summary.

An unusual case is reported in which the eruption consisted of kerion-like lesions and raised eczematous patches on the scalp and face. The disease proved resistant to treatment and ran a course of eight months.

No cause was discovered, and only one comparable case has been found in the literature.

*Postscript.*—(September, 1956). A fresh lesion about one inch in diameter appeared in late July on the right pre-auricular region and seems to be following a similar course.

We are indebted to Dr. J. Kinnear for permission to publish this case and for his helpful advice. Our thanks are due to Dr. C. H. Whittle for the clinical notes of his patient. We also wish to thank Dr. T. Bird of the department of pathology of St. Andrews University for the histological report and Mr. J. W. Corkhill, technician of the same department for Fig. 2. The other photograph was taken by Mr. D. Stewart, photographic technician in our department.

## References.

Beck, G. A., and Whittle, C. H. (1953) *Brit. J. Derm.*, **65**, 377.
Goldsmith, W. N. (1941) *Ibid.*, **53**, 299.
Lever, W. F. (1954) *Histopathology of the Skin*. 2nd ed. Philadelphia : J. B. Lippincott Company.
Smith, J. Ferguson (1938) *Brit. J. Derm.*, **50**, 352.

# ROYAL SOCIETY OF MEDICINE.

## SECTION OF DERMATOLOGY.

President—Dr. Louis Forman.

19 January 1956.

**Pemphigus Foliaceus.**—Dr. L. Forman.

Mrs. R. K—, aged 28 yrs.

From the age of 15 yrs. this patient has been under treatment at various hospitals with recurrent blistering and exfoliation of the whole body.

The diagnoses offered during the early stages included seborrhoeic dermatitis and dermatitis herpetiformis. She was admitted to hospital from March 1954 to December 1954, and has been under treatment with steroids during that period and since as an out patient.

On admission in March 1954, there was a generalized erythrodermia. The scalp was crusted, the skin of the trunk and limbs was erythematous, thickened and scaling. The thickening of the neck and forearms recalled that of acanthosis nigricans, without, of course, the pigmentation.

The dose of cortisone given during admission has been high, and has been associated with a gradual improvement of the skin colour and thickening ; thus during 1954, 300–200 mg. of cortisone or equivalent of A.C.T.H. daily for eight months. Following this course to the present time, covering a further period of 8 months, 50–100 mg. a day of cortisone with short periods of 200 mg.

The cheeks have also been treated with 2·5% hydrocortisone ointment.

*Present Condition.*—Defined parakeratotic plaques in the scalp with the hair bound down by scale. Isolated horny and warty papules over the trunk. The subsiding generalized acanthosis of the neck and limbs is just in evidence.

**Lichen Pilaris Seu Spinulosus.**—Dr. N. A. Thorne.

Mr. T. W—, aged 34, had always been healthy until three years ago when he suffered from hypoglycaemic attacks. Two years ago, he developed an eruption on the right ankle. Since then similar lesions have appeared elsewhere on the body, and some of the earlier ones have now disappeared. The lesions consist of horny spines occluding the pilosebaceous follicles with absence of hairs over the affected areas which vary from 5 to 10 cm. in diameter. At some period during the evolution of each lesion a number of indolent follicular pustules appear, which on culture yield *Staphylococcus pyogenes*. No fungus has been isolated from either the toe clefts or the actual lesions. All other investigations have been negative. A therapeutic trial of vitamin A 100,000 units daily for 2 months failed to affect the course of the disease. Local ultraviolet ray therapy had no effect.

The histology shows a chronic folliculitis with follicular hyperkeratosis and a heavy perifollicular infiltrate of lymphocytes, histiocytes and occasional eosinophils. There is also focal parakeratosis and a few small areas of spongiosis.

I think that we can dismiss the possibility of a trichophytid, as examination of the toe clefts for fungus has been consistently negative. Microscopy has also excluded a local fungous infection.

Phrynoderma (Avitaminosis A) must be considered but the absence of general dryness and roughness of the skin, the lack of eye changes or soreness of the mouth,

together with the slowness of spread of this patient's lesions and no improvement on high and prolonged vitamin A therapy are incompatible with this diagnosis.

Pityriasis rubra pilaris (lichen ruber acuminatus) might account for the lesions, but I feel that although they are symmetrically placed, they are not sufficiently widespread in their distribution. There is no hyperkeratosis and fissuring of the palms and soles as well as no follicular hyperkeratosis on the dorsal aspects of the fingers.

Keratosis pilaris (keratosis supra-follicularis) usually occurs on the extensor aspect of the arms and thighs with the lesions arranged in poorly defined groups dotting otherwise normal skin in a fairly regular pattern. It is often associated with ichthyosis. This is not the distribution seen in this patient, although he exhibits the secondary infection by staphylococci frequently associated with this condition.

As lichen plano-pilaris is a follicular type of lichen planus, I would expect to find marked follicular atrophy in the areas that had first been affected. This does not appear to be present in this patient.

Finally, there is lichen pilaris seu spinulosus (Crocker). Although principally seen in children, there is a variety that occurs in adults and is characterized by filiform spines protruding from acuminate follicular papules or from the follicular openings independent of any papules. The spines tend to be grouped, the lesions appear in crops and are symmetrically distributed over the trunk and limbs.

In the literature there is a considerable difference of opinion between authors about the classification of keratotic lesions involving pilo-sebaceous follicles. Sacks and De Oreo considered lichen plano-pilaris, lichen planus et acuminatus atrophicans (Feldman), lichen spinulosus and folliculitis decalvans (Little) as the same disease.

I feel that in this patient the diagnosis is difficult to pin-point with certainty. I would personally favour that of lichen pilaris seu spinulosus, but I should value the opinion of members regarding the diagnosis.

Reference.

Sacks and De Oreo (1942) *Arch. Derm. Syph.* **45**, 1081.

**Lichenoid Eruption with Nail Changes, Possibly Due to Mercury.**—Dr. R. G. Howell (for Dr. G. B. Mitchell-Heggs).

Mr. H. E—, aged 60, had been treated for three years for hypertensive cardiac failure with mercurial diuretics, digitalis, and Serpasil. In May 1954 he developed eczema of the " seborrhoeic dermatitis " pattern. In February 1955 the eczema had cleared, but there were numerous lichenoid patches on the abdomen, thighs and shoulders. At the same time all the nails of hands and feet became thick opaque and greenish in colour.

In March 1955 the dose of Thiomerin (mercaptomerin sodium, Wyeth) was reduced from 2 ml. to 1 ml. weekly, and the lichenoid rash slowly faded, leaving much brown pigmentation.

He continued to receive Thiomerin 1 ml. weekly from time to time, the pigmentation remaining without irritation.

In January 1956 he developed a diffuse erythema of the trunk on the day after an injection of Thiomerin.

There have never been any mucosal lesions.

*Investigations.*

*Blood count.*—Hb 95%. WBC. 6,000, normal differential count.

*Urine.*—No abnormality.

*Examination of nails for fungus* has been negative.

*Histology of lichenoid rash* shows an infiltrate of lymphocytes directly beneath an atrophic epidermis. There are a few collections of pigment (melanin), lying free and in macrophages, with some plasma cells deeper in the corium.

*Comment.*

The toxic effects of mercury due to accumulation have been known since ancient times, and more recently the effects of hypersensitivity have often been described. Morbilliform, purpuric, exfoliative and urticarial rashes have occurred, but there does not appear to be any previous account of a lichenoid rash with nail changes, although lichenoid rashes occur commonly with gold and arsenic.

*Postscript.*

Since January 1956 the patient has not had any mercurial injections, the erythematous rash has faded, and the lichenoid patches are disappearing. The nails have remained unchanged (March 1956), and nail clippings are being collected to estimate their mercury content.

The PRESIDENT: I agree with Dr. Howell that the mercurial diuretics do sometimes lead to severe cutaneous eruptions, either lichenoid, or to generalized exudative dermatitis. In elderly feeble patients this generalized dermatitis may be a serious and even fatal complication.

Dr. THORNE: Some years ago when I treated a large number of patients who suffered from heart failure with injections of mercurial preparations such as Mersalyl, I was struck by the comparative rarity of dermatological side effects. I feel that such reactions are probably more common in patients who receive Mersalyl injections when there is some pre-existing renal damage with the result that the mercury is retained in the body for an unduly long period.

The following cases have been published in *Proc. R. Soc. Med.*, **49**, 426.

**Erosive or Desquamative Gingivitis. Lichen Planus of the Scalp and Body.**—Dr. LOUIS FORMAN.

**Sarcoidosis Presenting as Scar Granuloma.**—Dr. ARTHUR ROOK and Dr. R. A. DAVIS.

**Lupus Miliaris Disseminatus Faciei.**—Dr. C. M. RIDLEY (for Dr. BRIAN RUSSELL).

**Multiple Kerato-acanthomas.** Dr. P. A. J. SMITH.

The following cases also were shown:

**Pityriasis Lichenoides Chronica et Varioliformis Acuta.**—Dr. E. PRETTEJOHN (introduced by Dr. J. R. SIMPSON).

**Leprosy** (slides and photographs only).—Dr. P. J. FEENY.

## BRITISH ASSOCIATION OF DERMATOLOGY

The 36th Annual Meeting of the Association was held in London on 18 and 19 July under the presidency of Dr. G. B. Dowling. 100 members were present and there were 28 guests.

The Annual Business Meeting began with the reports of the Hon. Treasurer and of the Hon. Editor which were adopted. The proposal was then considered that ordinary members over the age of 65 should be placed on a separate list of Senior Ordinary Members and that the limited number of ordinary members should not include these senior members. This was adopted.

It was next agreed that an ordinary member who has not attended an annual meeting for three consecutive years shall cease to be a member of the Association unless exempted by the Executive Committee.

It was decided that the next annual meeting should be held in London on 26, 27 and 28 July 1957, under the presidency of Dr. W. N. Goldsmith. The following officers were then nominated and elected :

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| President : | Dr. W. N. Goldsmith. |
| Hon. Treasurer : | Sir Archibald Gray. |
| Hon. Secretary : | Dr. H. J. Wallace. |
| Hon. Editor : | Dr. F. Ray Bettley. |
| Assistant Editor : | Dr. G. W. Bamber. |

Members of Committee :

| | |
|---|---|
| Dr. J. H. Twiston Davies. | Dr. R. Hall. |
| Dr. G. B. Dowling. | Dr. G. A. Grant Peterkin. |
| Dr. Clifford Evans. | Dr. A. D. Porter. |
| Dr. S. C. Gold. | Dr. P. Samman. |
| Dr. H. Gordon. | Dr. I. B. Sneddon. |

Dr. S. Cochrane Shanks was elected an Honorary Member ; Professor Kogoj and Professor Matsumoto were elected Honorary Foreign Members. The following were elected Ordinary Members :

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|---|---|
| Dr. P. Inman. | Dr. R. H. Meara. |
| Dr. A. Lyell. | Dr. Clifford Stuart. |
| Dr. J. B. Lyon. | |

The Meeting then accepted affiliation of the South Australian Branch and of the Western Australian Branch. Dr. John Connolly was elected a member of the New South Wales branch.

The Scientific Meeting began with a discussion on purpura opened by Dr. Alan Sharp and Dr. I. B. Sneddon. Then followed short papers by Dr. Allan Bigham—" Molluscum Sebaceum " ; Dr. Allene Scott—" The Behaviour of Radio-Active Sulphur when applied to the Skin " ; Professor G. H. Percival—" The Primary Lesion in Pyoderma Gangrenosum " ; Dr. J. T. Ingram—" Acrosclerosis " ; Dr. John Everall—" Pustular Psoriasis " ; Dr. W. R. Bett —" Dermatological Anniversaries".

On 19 July there was a discussion on drug eruptions, opened by Dr. G. A Grant Peterkin, Dr. G. C. Wells and Dr. C. D. Calnan. After this there were more short papers by Dr. R. A. Holman—" The Impact of Antibiotics on Organisms " ; Dr. Brian Russell—" Observations on Herpes Gestationis " ; Dr. Alan Lyell—" A Toxic Eruption Resembling Scalding of the Skin " ; Dr. R. E. Church—" The Prospect of Psoriasis " ; Dr. C. D. Calnan—" Lymphocytic Infiltration of the Skin". This concluded a very active morning and the afternoon was left free.

## FRANCO-BRITISH REUNION

The 2nd Franco-British Reunion took place in London on 20 and 21 July. In addition to the 100 British members and their 28 guests, 28 of our French colleagues came to the Reunion. The first day was occupied by eight papers, four of which were read by our French guests and four by British members : Professor C. Huriez—" Liver biopsy in various dermatoses " ; Dr. G. Garnier—" Benign Plasmacellular Erythroplasia " ; Dr. P. Le Coulant—" Muscle Histopathology in Dermatomyositis, Lupus Erythematosus and Scleroderma " ; Dr. J. Hewitt—"Subdermal Nodular Vasculitis " ; and Dr. J. A. Dudgeon—" Generalized Vaccinia " ; Dr. G. C. Wells—" Some Effects of Hydrocortisone on the Skin " ; Dr. Henry Haber—" A Peculiar Papillary Eruption of the Neck " ; Dr. I. B. Sneddon and Dr. D. S. Wilkinson—" A Subcorneal Pustular Dermatosis".

These eight papers were much discussed and occupied the entire day. The next morning a clinical meeting was held at St. Thomas's Hospital at which 41 cases were demonstrated and afterwards discussed.

After the great success of the Franco-British meeting in Paris two years ago, we were anxious to welcome our French colleagues and to try to rival the very high standard of hospitality and professional excellence of the 1st Reunion. This was indeed a difficult task ; if our French guests enjoyed their visit as much as we enjoyed seeing them in London, then our efforts are rewarded.

The President and Mrs. Dowling held a cocktail party on 19 July which was extremely well attended and very much enjoyed. The Annual Dinner took place on the Friday evening at Grosvenor House Hotel. The principal speakers were Dr. G. B. Dowling ; Dr. Alice Carleton proposed the health of the guests

SIR ARCHIBALD GRAY,
C.B.E., M.D., F.R.C.P., F.R.C.S.

*By Rodrigo Moynihan, C.B.E., R.A.*

and Professor Nanta, President of the *Société Française de Dermatologie et de Syphiligraphie*, replied. The company learned with plesaure that Dr. Dowling had won the golf trophy and it was awarded to him by Dr. Ivan McCaw with applause.

After this Sir Archibald Gray was presented with his portrait painted by Mr. Rodrigo Moynihan, R.A. The presentation was made by the President on behalf of all the members of the Association who had subscribed to this as a token of affection and of their appreciation of the great services Sir Archibald had rendered to the Association and to British Dermatology for many years. This was immediately followed by the presentation to Lady Gray of her portrait by Mr. Malcolm Osborne, R.A.

The end of the meeting was at lunch on 21 July to which we were invited by the Treasurer and the Governors of St. Thomas's Hospital.

The whole meeting, covering a period of four days, naturally involved considerably more organization than is usual for the annual meeting. The great success of this week was largely due to the inspiration of Dr. G. B. Dowling and to the charming hospitality which he and Mrs. Dowling offered.

# BOOK REVIEW

## Gold*

This monograph is one of the series of American Lectures in Dermatology. In the foreword, the authors make it clear that the work is not intended to be comprehensive, and that it omits important subjects, such as the use of radioactive gold compounds.

In the first four chapters the history, chemistry, metabolism, and mode of action of gold compounds is dealt with briefly and clearly. The next chapter discusses the therapeutic use of gold in tuberculosis, lupus erythematosus, and rheumatoid arthritis. In the first two of these diseases the authors correctly conclude that gold no longer retains any place in treatment, whereas in rheumatoid arthritis there is a definite limited sphere of usefulness. The final chapters deal with toxicity and its prevention, and it is this section of the book that is of particular use to the dermatologist.

The monograph is well written, concise, and attractively produced ; it seems a pity that so much of the subject matter is now of historical rather than practical interest.

A. C. B.

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* *Metabolism, Pharmacology and Therapeutic Uses of Gold Compounds.* By Walter D. Block and Kornelius Van Goor. 1956. Springfield, U.S.A. : Charles C. Thomas. Oxford : Blackwell Scientific Publications. Pp. 76. Price 20*s*.

# CURRENT LITERATURE

**THE CYTOLOGICAL ESTABLISHMENT OF MESENCHYMAL CHANGES IN LUPUS ERYTHEMATOSUS ACUTUS DISSEMINATUS.** K. Makrycostas. (1955) *Dermatologica*, **111**, 129.

The author made an exact analysis of a spleen punctate made twenty minutes after death of a case of L.e.a.d., and found a considerable increase of lymphoid cells, plasmacellular elements and tissue mast-cells. In considering Marmont's theory of the genesis of the L.E. cells, he concludes that the increase of reticulum cells and the appearance of giant cells shows a stimulation of the mesenchyme, that the increase of the plasmocytary elements confirms their significance for the protein changes and the antigen-antibody reaction, and that finally the striking increase of tissue mast-cells emphasises the parts played by heparinoid substances in the formation of L.E. cells. (Author's summary.) J. F. S.

**THE INFLUENCE OF NEURO-PSYCHOGENIC FACTORS IN THE AETIOLOGY OF GENERALIZED NEURODERMATITIS.** E. Milder. (1955) *Dermatologica*, **111**, 140.

On the basis of the newer literature and the author's own observations, he discusses the many-sided problem of the eczema-asthma-hay fever complex. As well as a constitutional increased reactivity of the autonomic nervous system especially, he considers that psychogenic factors have a very important aetiological and pathogenic significance, and he gives some examples.
(Author's summary.) J. F. S.

**A CURIOUS PROPERTY OF THE SERUM IN ECZEMA.** A. Delmotte. (1955) *Dermatologica*, **111**, 137.

The serum of patients suffering from eczema sometimes possesses the property of accelerating the action of testicular and staphylococcal hyaluronidases. This property is always observed during extension or aggravation of the eczema. During the normal evolution of an eczema, the serum first seems to accelerate the action of hyaluronidase and then to inhibit it considerably, before coming back to inhibitory values that are generally considered as normal.
(Slightly modified from author's summary.) J. F. S.

**A GLUCOSE-6-PHOSPHATASE IN THE SKIN.** G. Bonu and G. Zina. (1955) *Dermatologica*, **111**, 349.

The authors were able to demonstrate the presence of a specific glucose-6-phosphatase in skin extract. It was mainly in the epidermis, and had an optimal pH of around 7. In spite of the acid and alkaline phosphatases present in the skin which acted on the same substrate, the authors managed to achieve an identification by means of numerous and painstaking experiments.
(Slightly modified from authors' summary.) J. F. S.

**TUMOUR-LIKE LESION FROM AN ANASCOSPOROGENOUS YEAST.** W. Knoth, S. Krause and K. H. Knoll. (1955) *Dermatologica*, **111**, 357.

A report is given of a tumour-like swelling, the size of an apple, on the cheek of a two-year-old child, which was found by clinical, histological, mycological and experimental tests to be caused by an anascosporogenic yeast, of the species *Rhodotorula rubra*.
(Slightly modified from authors' summary.) J. F. S.

**THE COMPONENTS OF THE CORNFIED EPITHELIUM OF THE HUMAN SKIN.** A. G. Matolsy and C. A. Balsamo. (1955) *J. invest. Derm.*, **25**, 71.

Horny material obtained from callosities was reduced to a dry powder. A porecelain-ball mill is mentioned as the means by which the cornified epithelium was "broken down into its single cellular constituents", but no method of desiccation is specified.

Twenty-one per cent. of the powder dissolves in $\frac{1}{15}$ M phosphate buffer of pH 7·1. Of this 60% is non-dialysable and is referred to as "soluble epidermal keratin" (SEK). All that remains, except a 5% residue of what is believed to consist of extra tough cell membranes, dissolves in 0·02 N NaOH. Only 20% of this is dialysable and the high molecular weight substance which is here

named " epidermal keratin derivative " (EKD) seems, apart from differences in solubility to be much the same as the SEK. The acid precipitated EKD varies slightly in composition according to the original solvent employed. J. H. T. D.

**TREATMENT OF SYSTEMIC LUPUS ERYTHEMATOSUS WITH PREDNISONE AND PREDNISOLONE.** A. J. Bollet, S. Segal and J. J. Bunim. (1955) *J. Amer. med. Ass.*, **159**, 1501.

Prednisone and prednisolone were used to treat 10 patients with systemic lupus erythematosus. They were approximately four times more potent than, but their effects and limitations were similar to, those of cortisone and ACTH. They did not, however, cause sodium and water retention when given in moderate therapeutic doses. A. J. R.

**HAZARD OF CORTICOTROPIN AND CORTISONE THERAPY IN PATIENTS WITH HYPERCHOLESTEREMIA.** D. Aldersberg, J. Stricker and H. Himes. (1955) *J. Amer. med. Ass.* **159**, 1731.

Experience with patients who developed thromboembolic complications while receiving ACTH or cortisone suggests the need for caution in administering these drugs to patients with hypercholesteraemia. Hypercoagulability induced by the steroids may be disastrous in individuals with the vascular disease, sometimes not clinically evident, associated with hypercholesteraemia. A. J. R.

**EFFECT OF TOPICALLY APPLIED ANTIBIOTIC AGENTS ON AXILLARY ODOR.** W. B. Shelley and M. M. Cahn. (1955) *J. Amer. med. Ass.*, **159**, 1736.

The application of neomycin in a cream or lotion completely inhibited the production of axillary odour in 20 men. Axillary odour results from the action of bacteria on apocrine sweat. Antiobiotics may be useful in patients who do not tolerate the usual aluminium salts. A. J. R.

**PORPHYRIA AND PREGNANCY.** J. B. Durst and M. A. Krembs. (1956) *J. Amer. med. Ass.*, **160**, 165.

The effect of pregnancy in three cases of porphyria is reported. After an exacerbation of symptoms during the first three months there was an improvement during the remainder of the pregnancies. In two of the patients the symptoms recurred after delivery. In one patient tetraethylammonium chloride relieved the abdominal cramp. A. J. R.

**TOTAL SULPHYDRYL CONTENT IN NORMAL AND VITILIGINOUS HUMAN SKIN.** S. Lajmanovich and P. H. Magnin. (1956) *J. invest. Derm.*, **25**, 79.

" Total " by contrast with the merely water-extractible SH groups with which previous studies have been concerned. The tissues here are disintegrated with trichloracetic acid and " Duponol ", so as to release the lot. J. H. T. D.

**ASSAY TECHNICS FOR LOCAL ANTI-INFLAMMATORY ACTIVITY IN THE SKIN OF MAN WITH PREDNISONE AND PREDNISOLONE.** L. Goldman, R. Flatt and J. Baskett. (1955) *J. invest. Derm.*, **25**, 75.

These steroids differ only very slightly in their chemical structure from cortisone and hydrocortisone and produce similar local effects. By the mouth, it is stated, they are 4 or 5 times as effective ; and, at the lower dosage thus made possible, side effects are infrequent. J. H. T. D.

**BENIGN HEMANGIOENDOTHELIOMA OF THE JUVENILE TYPE.** M. V. Sirsat. (1956) *J. postgrad. Med., Bombay*, **2**, 149.

This is a report of four cases of a benign haemangioendothelioma of the juvenile type. In all cases the lesion appeared in childhood or early adult life and formed an ill-defined tumour on the trunk. The histology was of a proliferating mass of endothelial cells, some forming vascular channels and others forming solid cords. There are three good photomicrographs. Excision appears to have resulted in complete recovery. F. R. B.

**LUMBAR SYMPATHECTOMY IN THE TREATMENT OF HYPERTENSIVE ISCHEMIC ULCERS OF THE LEG (MARTORELLI'S SYNDROME).** J. Palou. (1955) *Circulation*, **12**, 239.

This is the report of four cases of hypertensive ulcers successfully treated by lumbar sympathectomy. The case reports are brief but the author seems to indicate that he considers sympathectomy to be the important factor which brought about healing in his cases. F. R. B.